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on 9/19/03

Alvin J. Blum
9/19/03

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IN THE UNITED STATES PATENT AND TRADEMARKS OFFICE

APPLICANT: ROBERT FERNANDEZ

SERIAL NUMBER : 09/993261

FILED: 11/14/01

GROUP ART UNIT: 2837

DOCKET NUMBER: F100128

EXAMINER: JIANG, CHEN WEN

FOR: VEHICLE AIR CONDITIONER WITH INVERTER

Commissioner of Patents and Trademarks

REPLY BRIEF

(7) Grouping of claims

In the Examiner's answer, it was indicated that appellant's statement-----

Claim 1 relates to a system with a DC/AC inverter to power air handling fans for condenser and evaporator. It stands separate from claim 2, which employs a variable frequency inverter for varying fan speed for temperature regulation. -----is not agreed to because appellant did not provide separate arguments for the patentability of claim 2.

Appellant herewith provides separate arguments for the patentability of claims 1 and claim 2.

APPELLANT'S RESPONSE

CLAIM 1. It is respectfully submitted that the application is improperly rejected for want of a prima facie showing of obviousness.

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Appellant's specification reveals that improved performance from his claimed arrangement comes from the fact that AC blower motors are much lower in initial cost. Furthermore, they don't incur high maintenance costs associated with brush replacement characteristic of DC motors (specification page 1, lines 13, 18). Appellant has found that brush replacement problems in vehicles such as buses are complicated by the fact that the drivers work in shifts on available buses, accepting little maintenance responsibility. Consequently, maintenance is delayed with failure and costly out of service time. The AC motors have lower initial cost and low maintenance with no brushes.

However, the combination taught by Matsuda would be very cost ineffective as well as being opposite teaching. Driving the compressor of a vehicle air conditioner requires many horsepower. To adopt his teaching of driving the compressor from an AC motor rather than from a simple belt to the engine requires buying a very expensive large and bulky motor. Applicant's simple belt and pulley is cheaper for driving the compressor, and far more energy efficient. Taking so much power from the engine through a belt and pulley to a generator, then driving the compressor with that generator power causes energy losses at each step of Matsuda combination. His teaching of not letting the engine speed control the compressor speed is further opposite teaching and results in a completely different function. Vehicles running at high speed have inherently greater air conditioning requirements. By driving the compressor directly off the engine, applicant's combination provides a different means of compressor control that inherently responds to the load requirements. Examiner's suggested combination of running the '833 system, but with the compressor run off a pulley/ belt from the motor would no longer function as '833 intended, since the compressor would no longer run at constant speed regardless of engine speed.

Although '833 discloses the use of an inverter fed by a generator to power both the evaporator fan motor and the condenser fan motor, their system also feeds inverter power to the compressor motor ("the compressor 12 is not driven directly by the main engine 2", column 3, line28). In fact, one of the objectives of their construction is to use the type of sealed compressor that includes an integral electric AC motor ("using a compressor 12 of the hermetically sealed type with the driving motor and the compressing mechanism within a casing", column 3, line52). Another objective is to isolate the compressor speed and output from the engine rotation speed by driving it with an electric motor, (" where the engine speed drops, a speed of the compressor 12 and the others can be kept as rated there around."(column 3, line 32).

No teaching or suggestion is made in '833 that compressor be driven by the engine so that its speed is determined by the engine speed. Applicant's claim elements could not function with the proposed prior art combination since their compressor is not driven by the engine.

There has been no teaching or suggestion to modify the prior art, and the suggested combination would not work as intended by '833.

Since the prior art combination lacks elements of the claims, are opposite teaching, and do not function as intended, it is therefor unobvious. In re Clinton, 527 F. 2d, 188 USPQ365 (CCPA 1976)

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 947 F.2d 488, USPQ 2d 1438 (Fed.Cir. 1991).

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not

sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The showing of suggestion to combine must be clear and particular. Examiner has made no such showing. In re Dembiczak, 175 F.3d 994, 50 USPQ 2d. 1614 (Fed. Cir.1999).

CLAIM 2 It is respectfully submitted that the application is improperly rejected for want of a prima facie showing of obviousness.

Appellant's specification reveals that improved performance from his claimed arrangement comes from the fact that AC blower motors are much lower in initial cost. Furthermore, they don't incur high maintenance costs associated with brush replacement characteristic of DC motors (specification page 1, lines13,18). Appellant has found that brush replacement problems in vehicles such as buses are complicated by the fact that the drivers work in shifts on available buses, accepting little maintenance responsibility. Consequently, maintenance is delayed with failure and costly out of service time. The AC motors have lower initial cost and low maintenance with no brushes.

Furthermore, controlling motor speed by frequency control of AC motors in this application is very cost effective compared to speed control in DC motors of the prior vehicle air conditioning art.

However, the combination taught by Matsuda would be very cost ineffective as well as being opposite teaching. Driving the compressor of a vehicle air conditioner requires many horsepower. To adopt his teaching of driving the compressor from an AC motor rather than from a simple belt to the engine requires buying a very expensive large and bulky motor. Applicant's simple belt and pulley is cheaper for driving the compressor, and far more energy efficient. Taking so much power from the engine through a belt and pulley to a generator, then

driving the compressor with that generator power causes energy losses at each step of Matsuda combination. His teaching of not letting the engine speed control the compressor speed is further opposite teaching and results in a completely different function. Vehicles running at high speed have inherently greater air conditioning requirements. By driving the compressor directly off the engine, applicant's combination provides a different means of compressor control that inherently responds to the load requirements. Examiner's suggested combination of running the '833 system, but with the compressor run off a pulley/ belt from the motor would no longer function as '833 intended, since the compressor would no longer run at constant speed regardless of engine speed.

Although '833 discloses the use of an inverter fed by a generator to power both the evaporator fan motor and the condenser fan motor, their system also feeds inverter power to the compressor motor ("the compressor 12 is not driven directly by the main engine 2", column 3, line28). In fact, one of the objectives of their construction is to use the type of sealed compressor that includes an integral electric AC motor ("using a compressor 12 of the hermetically sealed type with the driving motor and the compressing mechanism within a casing", column 3, line52). Another objective is to isolate the compressor speed and output from the engine rotation speed by driving it with an electric motor, (" where the engine speed drops, a speed of the compressor12 and the others can be kept as rated there around."(column 3, line 32).

No teaching or suggestion is made in '833 that compressor be driven by the engine so that its speed is determined by the engine speed. Applicant's claim elements could not function with the proposed prior art combination since their compressor is not driven by the engine.

There has been no teaching or suggestion to modify the prior art, and the suggested combination would not work as intended by '833.

Since the prior art combination lacks elements of the claims, are opposite teaching, and do not function as intended, it is therefor unobvious. In re Clinton, 527 F. 2d, 188 USPQ365 (CCPA 1976)

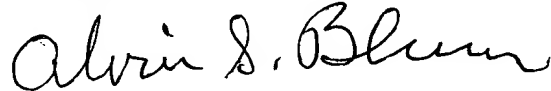
The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 947 F.2d 488, USPQ 2d 1438 (Fed.Cir. 1991).

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The showing of suggestion to combine must be clear and particular. Examiner has made no such showing. In re Dembiczak, 175 F.3d 994, 50 USPQ 2d. 1614 (Fed. Cir.1999).

For the foregoing reasons, it is submitted that the examiner's rejections are erroneous, and reversal of his decisions is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, reading "Alvin S. Blum". The signature is written in a cursive, flowing style.

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